

IN THE CLAIMS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. Notably, the status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

Claims 1 - 50, 52, 65 and 78 (canceled).

- 1 Claim 51 (Currently Amended): An EIW unit for use in sensing measuring a
2 physical characteristic of an electrically conductive layer that is deposited or formed by
3 integrated circuit processing equipment which is used to manufacture an integrated circuit,
4 the EIW unit comprising:
5 a substrate having a wafer or wafer-like shape ~~shaped profile~~ and a first surface to
6 receive the conductive layer that is deposited or formed by the integrated circuit processing
7 equipment; and
8 a sensor structure disposed on or in the substrate, the sensor structure including a
9 plurality of electrodes that are disposed on or in the substrate such that at least a portion of
10 each electrode is exposed on the first surface of substrate wherein each electrode is
11 spatially located, relative to the other electrodes and the conductive layer, on or in the
12 substrate to permit measuring of the physical characteristic of the conductive layer after
13 deposition or formation of the conductive layer on the EIW unit, and wherein the plurality of
14 electrodes, in conjunction with the conductive layer deposited or formed on the first surface
15 of the substrate, form a four-point probe type sensor.

1 **Claim 53 (Previously Presented):** The EIW unit of claim 51 further including
2 measurement circuitry, coupled to the sensor structure, to sample the electrical
3 characteristic of the conductive layer.

1 **Claim 54 (Previously Presented):** The EIW unit of claim 53 wherein the
2 measurement circuitry is disposed in or on the substrate and includes a current or voltage
3 source which is coupled to the electrodes of the sensor structure.

1 **Claim 55 (Previously Presented):** The EIW unit of claim 54 wherein the
2 measurement circuitry further includes a current or voltage measuring circuitry which is
3 coupled to the electrodes of the sensor structure.

1 **Claim 56 (Previously Presented):** The EIW unit of claim 53 wherein the
2 measurement circuitry includes data storage to store the sampled electrical characteristic of
3 the conductive layer.

1 **Claim 57 (Previously Presented):** The EIW unit of claim 56 wherein the
2 measurement circuitry operates in a real-time mode.

1 **Claim 58 (Currently Amended):** The EIW unit of claim 53 further including:
2 communication circuitry, disposed in or on the substrate, to provide the sampled
3 electrical characteristic of the conductive layer to an external device; and

4 at least one rechargeable battery, to provide electrical power to the communication
5 circuitry and measurement circuitry.

1 Claim 59 (Previously Presented): The EIW unit of claim 53 wherein the
2 measurement circuitry operates in an end-point mode.

1 Claim 60 (Currently Amended): A system for measuring ~~sensing the a~~ physical
2 characteristic of a first conductive layer that is deposited or formed by integrated circuit
3 processing equipment which is used to manufacture an integrated circuit, the system
4 comprising:

5 an EIW unit, including:

6 a substrate having a wafer or wafer-like shape ~~shaped profile~~ and a first
7 surface to receive the ~~surface structure~~ first conductive layer that is deposited or
8 formed by the integrated circuit processing equipment; and

9 a first sensor structure disposed on or in the substrate, the first sensor
10 structure including a plurality of electrodes that are disposed on or in the substrate
11 such that at least a portion of each electrode is exposed on the first surface of the
12 substrate wherein each electrode is spatially located, relative to the other electrodes
13 and the first conductive layer, on or in the substrate to permit measuring of the
14 physical characteristic of the first conductive layer after deposition or formation by
15 the integrated circuit processing equipment on the EIW unit, and wherein the
16 plurality of electrodes, in conjunction with the first conductive layer deposited or
17 formed on the first surface of the substrate, form a four-point probe type sensor;

18 measurement circuitry, coupled to the first sensor structure, to sample an electrical
19 characteristic of the first conductive layer; and
20 a computing unit device, coupled to the measurement circuitry, to receive data which
21 is representative of the electrical characteristic of the first conductive layer and to determine
22 the physical characteristic of the first conductive layer using the received data.

1 Claim 61 (**Previously Presented**): The system of claim 60 wherein at least a
2 portion of the measurement circuitry is disposed on or in the substrate of the EIW unit.

1 Claim 62 (**Currently Amended**): The system of claim 60 wherein the EIW unit
2 further includes a second sensor structure disposed on or in the substrate, the second
3 sensor structure including a plurality of electrodes that are disposed on or in the substrate
4 such that at least a portion of each electrode is exposed on the first surface of substrate
5 wherein each electrode is spatially located, relative to the other electrodes of the second
6 sensor structure and a second conductive layer, on or in the substrate to permit measuring
7 of a physical characteristic of the second conductive layer after deposition or formation of
8 the second conductive layer by the integrated circuit processing equipment on the EIW unit.

1 Claim 63 (**Currently Amended**): The system of claim 62 wherein:
2 the measurement circuitry is coupled to the second sensor structure to sample an
3 electrical characteristic of the second conductive layer; and

4 the computing unit device receives the data which is representative of the electrical
5 characteristic of the second conductive layer and, using that data, determines the physical
6 characteristic of the second conductive layer.

1 Claim 64 (Currently Amended): The system of claim 63 wherein the physical
2 characteristic of the first and second conductive layers are the linewidths of the conductive
3 layers and wherein the computing unit device determines a linewidth distribution using the
4 data which is representative of the electrical characteristic of the first conductive layer and
5 the data which is representative of the electrical characteristic of the second conductive
6 layer.

1 Claim 66 (Previously Presented): The system of claim 60 wherein the
2 measurement circuitry is disposed in or on the substrate and includes a current or voltage
3 source which is coupled to the electrodes of the first sensor structure.

1 Claim 67 (Previously Presented): The system of claim 66 wherein the
2 measurement circuitry further includes a current or voltage measuring circuitry which is
3 coupled to the electrodes of the first sensor structure.

1 Claim 68 (Previously Presented): The system of claim 66 wherein the
2 measurement circuitry includes data storage to store data which is representative of the
3 electrical characteristic of the first conductive layer.

1 Claim 69 (**Curr ntly Amend d**): The system of claim 66 wherein the EIW unit
2 further includes:

3 communication circuitry, disposed in or on the substrate, to provide the data which is
4 representative of the electrical characteristic of the first conductive layer to the computing
5 unit device; and

6 at least one rechargeable battery, to provide electrical power to the communication
7 circuitry and measurement circuitry.

1 Claim 70 (**Previously Presented**): The system of claim 60 wherein the
2 measurement circuitry operates in a real-time mode.

1 Claim 71 (**Previously Presented**): The system of claim 60 wherein the
2 measurement circuitry operates in an end-point mode.

1 Claim 72 (**Currently Amended**): The system of claim 60 wherein the electrical
2 characteristic includes a sheet resistance of the first conductive layer and wherein the
3 physical characteristic of the first conductive layer is the thickness of the first conductive
4 layer.

1 Claim 73 (**Currently Amended**): The system of claim 72 wherein the measurement
2 circuitry periodically samples electrical characteristic of the first conductive layer during
3 deposition or formation of the first conductive layer by the integrated circuit processing
4 equipment on the first surface of the EIW unit.

1 **Claim 74 (Currently Amended):** The system of claim 73 wherein the computing unit
2 device receives the periodic samples of the electrical characteristic of the first conductive
3 layer and, in response thereto, calculates the thickness of the first conductive layer over
4 time.

1 **Claim 75 (Previously Presented):** The system of claim 74 wherein the periodic
2 samples of the electrical characteristic of the first conductive layer are representative of the
3 entire deposition or formation process.

1 **Claim 76 (Previously Presented):** The system of claim 74 wherein the formation
2 process is a polishing process or chemical-mechanical polishing (CMP) process.

1 **Claim 77 (Currently Amended):** An EIW unit for use in measuring sensing a first
2 parameter of a first conductive layer that is deposited or formed by integrated circuit
3 processing equipment which is used to manufacture an integrated circuit, the EIW unit
4 comprising:

5 a substrate having a wafer or wafer-like shape ~~shaped profile~~ and a first surface to
6 receive the first conductive layer that is deposited or formed by the integrated circuit
7 processing equipment; and

8 a sensor structure disposed on or in the substrate, the sensor structure including:

9 a plurality of electrodes that are disposed on or in the substrate; and

10 a base pad electrically connected to the plurality of electrodes and disposed
11 on or in the substrate such that at least a portion of the pad is exposed on the first

12 surface of the substrate, wherein the base pad is spatially located on or in the
13 substrate such that the first conductive layer is deposited or formed on the base pad
14 by the integrated circuit processing equipment, and wherein the plurality of
15 electrodes, base pad and first conductive layer form a four-point probe type sensor.

1 Claim 79 (Previously Presented): The EIW unit of claim 77 further including
2 measurement circuitry, coupled to the sensor structure, to sample an electrical
3 characteristic of the first conductive layer.

1 Claim 80 (Previously Presented): The EIW unit of claim 79 wherein the
2 measurement circuitry is disposed in or on the substrate and includes a current or voltage
3 source which is coupled to the electrodes of the sensor structure.

1 Claim 81 (Previously Presented): The EIW unit of claim 80 wherein the
2 measurement circuitry further includes a current or voltage measuring circuitry which is
3 coupled to the electrodes of the sensor structure.

1 Claim 82 (Previously Presented): The EIW unit of claim 79 wherein the
2 measurement circuitry includes data storage to store data which is representative of the
3 electrical characteristic of the first conductive layer.

1 Claim 83 (Previously Presented): The EIW unit of claim 79 wherein the
2 measurement circuitry operates in a real-time mode.

1 **Claim 84 (Previously Presented):** The EIW unit of claim 83 further including:
2 communication circuitry, disposed in or on the substrate, to provide the data which is
3 representative of the electrical characteristic of the first conductive layer to an external
4 device; and

5 at least one rechargeable battery, to provide electrical power to the communication
6 circuitry and measurement circuitry.

1 **Claim 85 (Previously Presented):** The EIW unit of claim 79 wherein the
2 measurement circuitry operates in an end-point mode.

1 **Claim 86 (Previously Presented):** The EIW unit of claim 79 further including
2 computing circuitry disposed on or in the substrate and coupled to the measurement
3 circuitry, wherein the computing circuitry determines the first parameter of the first
4 conductive layer using the electrical characteristic of the first conductive layer.

1 **Claim 87 (Previously Presented):** The EIW unit of claim 86 wherein the first
2 parameter is the linewidth of the first conductive layer.

1 **Claim 88 (Previously Presented):** The EIW unit of claim 79 wherein the electrical
2 characteristic includes the resistivity of the first conductive layer.

1 **Claim 89 (Currently Amended):** The EIW unit of claim 88 further including
2 computing circuitry, coupled to the measurement circuitry, to determine ~~wherein the~~

3 ~~computing circuitry determines the first parameter using resistivity of the first conductive~~
4 ~~layer.~~

1 Claim 90 (**Previously Presented**): The EIW unit of claim 89 wherein the first
2 parameter is the thickness of the first conductive layer.

1 Claim 91 (**Currently Amended**): The EIW unit of claim 79 wherein the
2 measurement circuitry periodically samples an electrical characteristic of the first
3 conductive layer during deposition or formation of the first conductive layer ~~by the~~
4 ~~integrated circuit processing equipment~~ on the first surface of the EIW unit.

1 Claim 92 (**Previously Presented**): The EIW unit of claim 91 wherein the formation
2 process is a polishing process.

1 Claim 93 (**Previously Presented**): The EIW unit of claim 92 wherein the polishing
2 process is a chemical-mechanical polishing (CMP) process.

1 Claim 94 (**New**): The EIW unit of claim 51 further including:
2 measurement circuitry, coupled to the sensor structure, to sample the electrical
3 characteristic of the conductive layer while the EIW unit is disposed in the integrated circuit
4 processing equipment and the electrically conductive layer is being deposited or formed;
5 and

6 at least one battery, disposed on or in the substrate, to provide electrical power to
7 the measurement circuitry.

1 Claim 95 (New): The system of claim 60 further including:
2 measurement circuitry, coupled to the first sensor structure, to sample the electrical
3 characteristic of the first conductive layer while the EIW unit is disposed in the integrated
4 circuit processing equipment and the first conductive layer is being deposited or formed;
5 and

6 at least one battery, disposed on or in the substrate, to provide electrical power to
7 the measurement circuitry.

1 Claim 96 (New): The EIW unit of claim 77 further including:
2 measurement circuitry, coupled to the sensor structure, to sample an electrical
3 characteristic of the first conductive layer while the EIW unit is disposed in the integrated
4 circuit processing equipment and the first conductive layer is being deposited or formed;
5 and
6 at least one battery, disposed on or in the substrate, to provide electrical power to
7 the measurement circuitry.